

CLAIMS

- 5 1. A non-naturally occurring, receptor competent low
density lipoprotein particle comprising at least one
peptide component wherein the said peptide component is
bonded at the amino and/or carboxy terminus thereof to
at least one lipophilic substituent, wherein the at
10 least one peptide component comprises at least a
binding site for an Apo B protein receptor.
2. A particle according to claim 1 wherein the at least
one peptide component comprises at least a binding site
15 for an Apo B protein receptor made up of amino acid
residues selected from lysine, alanine, glutamine,
tyrosine, asparagine, histidine, arginine, threonine,
leucine and glycine and analogues thereof.
- 20 3. A particle according to claim 1 wherein the at least
one peptide component is from 8 to 500 amino acid
residues long.
4. A particle according to claim 1 wherein the peptide
25 component is from 8 to 200 amino acid residues long.
5. A particle according claim 1 wherein the peptide
component is from 8 to 50 amino acid residues long.
- 30 6. A particle according claim 1 wherein the peptide
component is from 9 to 30 amino acid residues long.

7. A particle according to claim 1 wherein the lipophilic substituent of the peptide component is selected from cholesteryl esters, lipophilic drugs, lipid soluble cytotoxic drugs, pyrenes, retinyl derived compounds, 5 polyunsaturated compounds, hormones, compounds having a steroid structure and C₁₀-C₂₂ fatty acids.
8. A particle according to claim 1 wherein the lipophilic substituent of the peptide component is selected from 10 cholesteryl oleate, triolein, etoposide, methotrexate diester, pyrene butyric acid, benzo(a)pyrene, 3-hydroxybenzo(a)pyrene, benzo(a)pyrene-7,8-dihydrodiol, N-retinoyl-L-leucyl DOX-14-linoleate, β-carotene, estradiol, testosterone, aldosterone, 15 diphenylhydantoin, bishydroxycoumarin, pentobarbital, perfluorinated cholesteryl oleate, anthracycline AD-32, and PCMA cholesteryl oleate.
9. A particle according to claim 1 wherein the lipophilic substituent of the peptide component is selected from 20 the group cholesterol, retinoic acid and C₁₀-C₂₂ fatty acids.
10. A particle according to claim 1 wherein the peptide component further comprises an hydrophilic substituent 25 selected from hydroxyl, carboxyl and amino groups.
11. A particle according to claim 1 wherein the binding sequence of the peptide component has at least a 70% 30 amino acid identity to an Apo B protein binding sequence.

12. A particle according to claim 1 wherein the binding sequence of the peptide component has at least a 80% amino acid identity to an Apo B protein binding sequence.
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13. A particle according to claim 1 wherein the binding sequence of the peptide component has at least a 90% amino acid identity to an Apo B protein binding sequence.
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14. A particle according to claim 1 wherein the at least one peptide component comprises at least one binding site selected from
- (1) Lys Ala Glu Tyr Lys Lys Asn Lys His Arg His (SEQ ID NO: 1) or a dimer thereof;
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- (2) Thr Thr Arg Leu Thr Arg Lys Arg Gly Leu Lys (SEQ ID NO: 2) or a dimer thereof, or
- (3) Arg Leu Thr Arg Lys Arg Gly Leu Lys (SEQ ID NO: 8) or a dimer thereof.
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15. A particle according to claim 1 wherein the peptide component is selected from the group peptide A, peptide B, peptide C, peptide D, peptide E and peptide F.
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16. A peptide comprising an Apo B protein binding sequence having at least 70% amino acid identity with an Apo B protein binding site selected from sequence (1), (2) or (3) or dimers thereof.
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17. A peptide according to claim 15 comprising an Apo B protein binding sequence having at least 80% amino acid identity with an Apo B protein binding site selected

from sequence (1), (2) or (3) or dimers thereof.

18. A peptide according to claim 16 comprising an Apo B protein binding sequence having at least 90% amino acid identity with an Apo B protein binding site selected from sequence (1), (2) or (3) or dimers thereof.
19. A peptide comprising an Apo B protein binding site selected from
- (1) Lys Ala Glu Tyr Lys Lys Asn Lys His Arg His (SEQ ID NO: 1) or a dimer thereof;
- (2) Thr Thr Arg Leu Thr Arg Lys Arg Gly Leu Lys (SEQ ID NO: 2) or a dimer thereof, or
- (3) Arg Leu Thr Arg Lys Arg Gly Leu Lys (SEQ ID NO: 8) or a dimer thereof.
20. A peptide according to claim 16 from 8 to 500 amino acid residues long.
21. A peptide according to claim 16 from 8 to 200 amino acid residues long.
22. A peptide according to claim 16 from 8 to 50 amino acid residues long.
23. A peptide selected from the group peptide A, peptide B, peptide C, peptide D, peptide E and peptide F.
24. A method of cell culturing which comprises providing a cell culture medium comprising a non-naturally occurring receptor competent low density lipoprotein

particle according to claim 1.

25. A method according to claim 24 wherein said particle is employed as a supplement for cell growth.